

REMARKSIntroduction

Claims 1, 2, 5-12, 15 and 16 of the present application are pending. In the final Office Action of September 20, 2005, Claims 1, 2, and 7-10 were rejected under 35 U.S.C. §103(a) as being unpatentable over Miyake, U.S. Patent No. 5,515,354 (Miyake), in view of Horinouchi et. al., U.S. Patent No. 5,377,177 (Horinouchi). In addition, Claims 5 and 6 were rejected under 35 U.S.C. §103(a) as being unpatentable over Miyake in view of Horinouchi, further in view of Braat, U.S. Patent No. 4,986,641 (Braat). Also, Claims 11, 12, 15 and 16 were rejected under 35 U.S.C. §103(a) as being unpatentable over Oudenhuisen, U.S. Patent No. 4,789,977 (Oudenhuisen).

Claims 1 and 11 are currently amended. Claim 1 was amended to specify that the recited solid lens "collects substantially parallel incident light and focuses it on the incident surface of the triangular prism." Claim 11 was amended to include the feature that the recited hologram unit "collects substantially parallel incident light and focuses it on said beam splitter." These amendments are supported by the specification and consequently, do not add new subject matter to the application.

Claims 1, 2, 7-10

Claims 1, 2, and 7-10 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Miyake in view of Horinouchi. The Examiner asserts that with respect to Claim 1, Miyake discloses all of the elements of the claim except that the direction changing means is a triangular prism. The Examiner relies on Horinouchi for the disclosure of a triangular prism. Applicant respectfully submits that it is not obvious to combine Miyake and Horinouchi.

An essential goal of Miyake is to provide a hologram mirror that occupies a minimum distance orthogonal to the disk 10. As such, Miyake would not be interested in replacing its

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESSSM
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

hologram mirror with a much larger polygon prism 101 of Horinouchi. Such substitution would be contrary to the goals sought to be reached by Miyake. To support the claim that a goal of Miyake is to provide a hologram mirror that occupies a minimum distance orthogonal to disk 10, Applicant points to the "Background of the Invention" in Miyake, wherein the following is stated:

"More particularly, the invention relates to a **thin** optical pickup having a hologram mirror for redirecting the optical axis of incident light from a light source so that it is perpendicular to the recording surface of a recording medium." (Col. 1, lines 11-15, emphasis added.)

"Using the hologram mirror 7 of such structure, the overall thickness of the optical pickup measured in the direction perpendicular to the disk is reduced, compared with an optical pickup that uses a mirror the face of which is tilted to the optical axis of the light by 45 degrees (hereinafter, referred to as a 45-degree tilted mirror). **The height of the optical pickup can thus be reduced.**" (Col. 1, lines 57-64, emphasis added.)

Also, in the "Summary of the Invention" in Miyake, the following is stated:

"Moreover, compared with a 45-degree tilted mirror, the thickness of the hologram mirror 12 measured in the direction perpendicular to the optical disk 10 can be reduced by a factor corresponding to $\sin \gamma$ because of its geometry." (Col. 5, lines 10-13.)

"Furthermore, compared with a 45-degree tilted mirror, the thickness of the hologram mirror 12 of the present embodiment measured in the direction perpendicular to the disk 10 is reduced to one-third or less...." (Col. 6, lines 8-11.)

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CHRISTENSEN O'CONNOR JOHNSON KINDNESSSM
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

"Furthermore, compared with a 45-degree tilted mirror, the thickness of the hologram mirror 12 of the present embodiment measured in the direction perpendicular to the disk surface is reduced to one-third or less...." (Col. 8, lines 3-6.)

"Furthermore, any of the above embodiments uses the HOE-LD-PD unit 5 in which the light source and photodetector are fabricated into a single unit, a construction advantageous for the reduction of size and weight of the optical pickup." (Col. 9, lines 5-9, emphasis added.)

The foregoing excerpts make clear that one goal of Miyake is to minimize the distance orthogonal to the optical disc 10 occupied by the hologram mirror. Consequently, one would not look to substitute the larger polygon prism 101 of Horinouchi for the hologram mirror of Miyake. Also, even if the hologram mirror of Miyake were replaced with the polygon prism 101 of Horinouchi, the objective lens 11 of Miyake would be superfluous. For this additional reason, it would not be obvious to combine Horinouchi and Miyake in a manner suggested by the Examiner.

Although Applicant believes that Claim 1 is in condition for allowance based for the foregoing reasons, Claim 1 has been amended to further distinguish it from the cited references. As amended, the claim recites the additional feature that the "the solid lens collects substantially parallel incident light and focuses it on the incident surface of the triangular prism." None of the references cited by the Examiner teach or suggest this limitation.

For the foregoing reasons, Applicant respectfully submits that Claim 1 is in condition for allowance. Furthermore, Claims 2 and 7-10 depend from Claim 1 and therefore, are also in condition for allowance.

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESSSM
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

Claims 5 and 6

Claims 5 and 6 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Miyake in view of Horinouchi, further in view of Braat. The Examiner asserts that with respect to Claim 5, Miyake combined with Horinouchi, discloses all of the elements of the claim except for the use of concave surfaces as the incident surface and the emitting surface of the prism. The Examiner relies on Braat for the disclosure of these concave surfaces.

Applicant respectfully submits that it is not obvious to combine Miyake and Horinouchi. As previously discussed, it is an essential goal of Miyake to provide a hologram mirror that occupies a minimum distance orthogonal to the disk 10. Consequently, there is no motivation to replace the hologram mirror of Miyake with the larger polygon prism 101 of Horinouchi. Absent some motivation to combine Miyake and Horinouchi, the addition of the concave surfaces taught by Braat is not sufficient to support a rejection under 35 U.S.C. §103(a). Accordingly, Applicant respectfully submits that Claim 5 is in condition for allowance.

Also, Claim 6 depends from Claim 5, and therefore should also be found allowable.

Claims 11, 12, 15 and 6

Claims 11, 12, 15 and 16 stand rejected under 35 U.S.C. §103(a) as unpatentable over Oudenhuisen. The Examiner acknowledges that Oudenhuisen does not disclose a beam splitter that is substantially planar; however, the Examiner asserts that planar beam splitters are well known in the art, thus it would be obvious to one skilled in the art to utilize a planar beam splitter with the objective lens system of Oudenhuisen. Applicant respectfully disagrees with this assertion, but has nonetheless amended Claim 11 to further distinguish it from Oudenhuisen. As amended, Claim 11 recites a hologram unit "wherein said hologram unit collects substantially parallel incident light and focuses it on said beam splitter."

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CHRISTENSEN O'CONNOR JOHNSON KINDNESSSM
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

Oudenhuisen teaches a hologram that diffracts a collimated light beam and changes its cross-sectional beam shape. Oudenhuisen does not disclose or suggest that the hologram unit focuses the light. Furthermore, since miniaturization is not an objective of Oudenhuisen, there is no suggestion by Oudenhuisen to have the hologram focus the incident light to the beam splitter, thereby allowing reduction in a beam splitter height measured orthogonal to the surface of the optical disc. For at least these reasons, Applicant respectfully submits that Claim 11 is in condition for allowance.

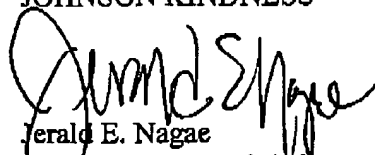
Furthermore, Claims 12, 15 and 16 depend directly or indirectly from Claim 11, and therefore, they too are in condition for allowance.

Conclusion

For at least the foregoing reasons, Applicant respectfully submits that the pending claims of the present application are in condition for allowance. If the Examiner has any questions concerning the foregoing, she is requested to contact the undersigned at 206-695-1705.

Respectfully submitted,

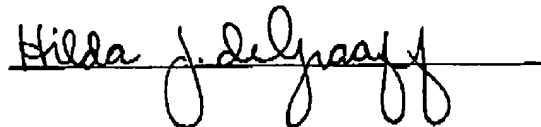
CHRISTENSEN O'CONNOR
JOHNSON KINDNESS^{PLLC}


Gerald E. Nagae
Registration No. 29,418
Direct Dial No. 206.695.1705

I hereby certify that this correspondence is being sent via facsimile to Examiner A.M. Harrington, Art Unit 2873, at facsimile number 1-571-273-8300, on the below date.

Date: December 20, 2005

JEN:jlb



LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS^{PLLC}
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100